PRINTING EQUIPMENT ENGINEER

Edited for those concerned with the use and care of Printing Equipment

NOVEMBER 1931

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PRINTING EQUIPMENT ENGINEER

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Check in left column after reading. Note articles of interest.

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BUT errors are not always funny. Fingers that falter on the keyboard are likely to be costly — to the operator as well as the boss.

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33 West 42nd Street, New York

This Changing World

[An Editorial]

Printing Equipment Engineer celebrates its first birthday. Taking into account its predecessor, the *Typesetting Machine Engineers' Journal*, we are, however, in our twenty-first year. Our editorial staff has endeavored to cater to the needs of mechanical executives in the printing industry. Whether we have succeeded or not rests with our readers. The Engineer has a well-defined mission in the publication field and letters from our readers indicate we are fulfilling that mission by conveying information concerning new machinery, new processes and new methods which are being developed by engineers who are constantly studying printing problems from a scientific standpoint.

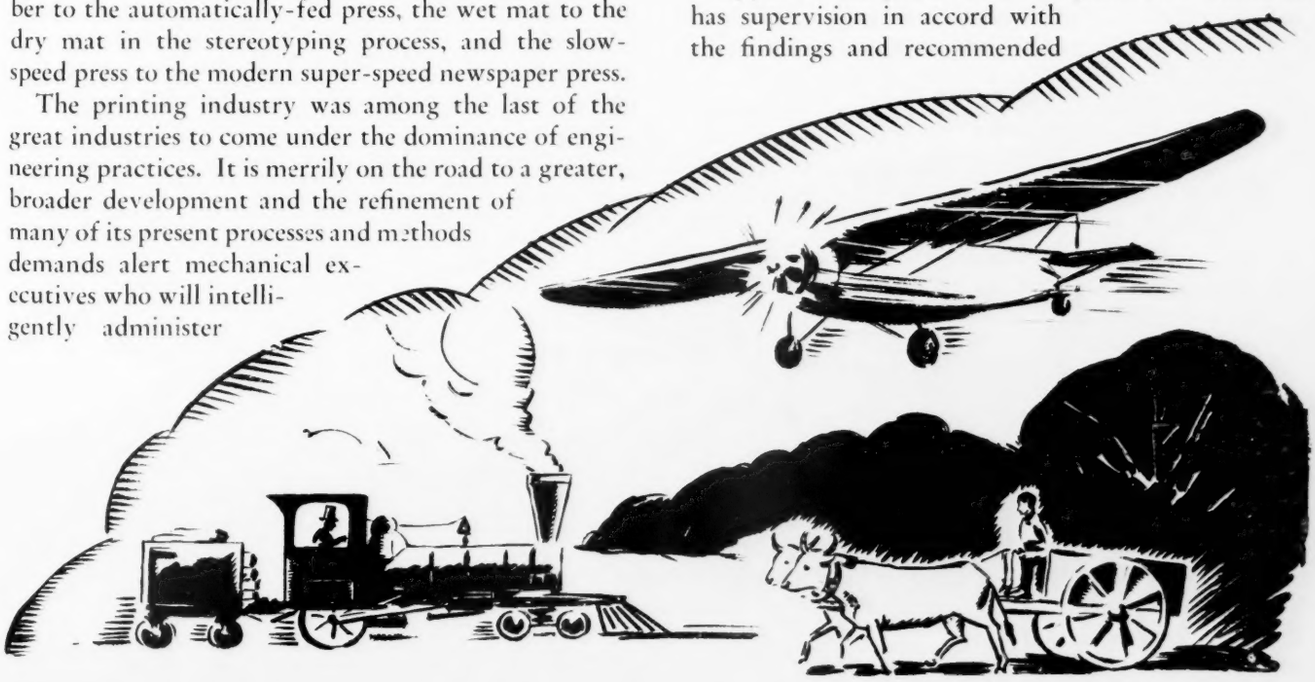
The printing industry, like any other industry, cannot stand still. Competition and the encroachment of other means of intelligence (notably the radio) simply won't permit those engaged in the industry to nestle with smug satisfaction in the belief that the ultimate has been accomplished.

Behind it all is the evolution of the ox-cart giving way to the automobile, the passenger train to the airplane and the log cabin to the mansion. Of more familiar comparison is the transition from hand composition to the composing machine, the hand-fed jobber to the automatically-fed press, the wet mat to the dry mat in the stereotyping process, and the slow-speed press to the modern super-speed newspaper press.

The printing industry was among the last of the great industries to come under the dominance of engineering practices. It is merrily on the road to a greater, broader development and the refinement of many of its present processes and methods demands alert mechanical executives who will intelligently administer the new things as they appear. Through this awakening it will retain its dominating position in civilization and its hold as mankind's major source of transmitting intelligence.

A warning to present and future mechanical executives indicative of the trend of the times may be found in the fact that major executives of the printing and publishing industry are engaging production managers and superintendents who have had engineering educations or at least those who possess sufficient technical knowledge to go along with the Spirit of Change which dominates the printing world today.

The organization of the Printing Industries Division of the A. S. M. E. and the Mechanical Department of the A. N. P. A. tells a story as to the methods of administration which may be expected in the future by the employers who are lending their support to technical movements which seek to establish methods and processes founded on fact as the result of patient analytic research. It follows that the future mechanical executive must be in sympathetic touch with the technique of this program. The employer, of course, is engrossed with administrative affairs but he will expect the man who is to be appointed his representative to approach the problems in the plant over which he has supervision in accord with the findings and recommended



practices of the organization to which the employer has been lending his support.

The difference between the mechanical executive today and the older type of executive is in the technical knowledge he possesses. Add to this his willingness to progress by adapting his thinking processes and methods of doing things to changing conditions. Herein lies the keynote for the future mechanical executive. There is no room in the industry for obsolescent brains!

The mechanical executive who has absorbed technical knowledge (whether it be in college or otherwise) is in a position to demand a higher salary than the man who has a mental process akin to the old-time mechanic who was supposed to labor on with the equipment furnished by his employer. Times have changed. Today's mechanical executive should be the means of keeping his employer informed of the latest results of scientific research and in seeking to have those things adopted which are applicable in the plant where he is employed.

Old Man Obsolescence goes on forever, irresistibly, progressively. You might think you can avoid his devastating influence by retaining a fixed thinking process but in trying to avoid him you will be just another ostrich sticking his head in the sand.

There was a certain plant filled with high-priced machinery which had long since outlived its useful period in producing work at a profit. The superintendent thought he was doing his employer a favor by permitting the equipment to remain in use. Friends of the superintendent remonstrated with him in an endeavor to show him his error. A patch here and a patch there until finally, true to his usual form, Old Man Obsolescence shot the operating and maintenance costs skyward. The employer found it necessary to supplant the superintendent with another man who possessed non-obsolescent brains.

An executive may thoroughly understand the methods and processes under his jurisdiction. Having become familiar with their application, he should not rest content, feeling that he is filling his position acceptably. The Spirit of Change forbids it. We take it the mechanical executive should investigate new machinery, new methods, new processes and attend properly sponsored technical conferences, each with the end in view of assisting his employer to maintain the reputation of his firm as a progressive business institution.

In the immediate tomorrow we will see finer automatic machinery, doing printing of a quality which is not comprehensible just now. Scientific research goes on surely and steadily.

Are you familiar with the latest developments in pre-makeready methods, automatic composition, the proposed four-color daily newspaper, the refinement of the dry mat, quick-drying inks, humidification, obsolescence and many other improved methods and proposed processes?

Indeed this is a restless, changing world. If you have not already done it, climb into the band-wagon and participate in the procession. Otherwise—well, Old Man Obsolescence will claim you for his own and substitute another.

PRINTING EQUIPMENT ENGINEER now starts its second year with greater confidence and a renewed pledge to keep its readers accurately informed with last-minute developments within the technical scope of the printing industry.

Third Technical Conference

The third conference of Technical Experts, Printing Industries' Division of the A. S. M. E. will meet in New York City, March 14-15, in the new McGraw-Hill building, 42nd street near Eighth avenue. Floyd E. Wilder is chairman of the special program committee.

The program is to be made up from the following list of subjects which were received in response to a questionnaire sent out a short time ago:

Advanced stereotype methods, including stereotypes for color printing; advanced electrotype methods, including latest research work, standards, and color plates; progress in color printing on newspapers; pre-makeready developments, including precision machines, the McKee process, preparation of plates, etc.; application of engineering to the printing industry, covering obsolescence, efficient planning, lighting, motion-time analysis, incentives, etc.; recent developments in ink; developments in new printing processes, including intaglio halftone, pantone, etc.; paper, including permanence, tests, relation to ink, strains, finish and strike-through, causes of misregister, etc.; progress in offset printing, including the web perfecting litho-offset press, making of plates, deep-etch plates; progress in standardization of color; development in printing rollers; relation of press speeds to production.

Other suggested topics include harder metal, nickel and chromium finish, chemical engineering in the printing industry, competition of radio and radio-television, improvements in humidity control, bearings and lubrication, feeders, speeding small cylinders and platens, application of the electric eye in printing plants, design of special production machinery, sheet-fed gravure.

Obtains Practical Ideas

Louisville, Ky., October 20, 1931.

Printing Equipment Engineer,
1370 Ontario Street,
Cleveland, Ohio.

Permit me to congratulate you on the excellence of PRINTING EQUIPMENT ENGINEER, especially the October edition.

I notice a great improvement with each issue and have obtained quite a number of practical ideas therefrom.

The number of advertisers now using your publication proves that not only those engaged in the mechanical departments realize its worth but that the advertisers themselves are convinced of its merits.

I shall continue to look forward to its monthly visit.

With best wishes for its continued excellence and growth, I remain

Very truly yours,

GEO. F. MIDDENDORF, *Sup't. Composing Room,*
The Courier-Journal.

Plastic Printing Inks For Rapid Drying

By M. E. HANSON*

Milton E. Hanson, Contributing Editor of the ENGINEER, *Who Will Keep Our Readers Informed as to the Latest Research Work on Quick-Drying Inks to Prevent Offset and Other Engineering Problems Confronting the Industry.*

DURING the last few years there has been a great deal of new knowledge gained concerning the heretofore obscure subject of Plastic Chemistry. Much advancement has been made in the development of synthetic resins and gums. This, taken together with the introduction on the market of many new and useful commercial solvents, has given great impetus to the study and evolution of varnishes, paints and color inks.

Familiar to all are the comparatively modern duco and other so-called automobile lacquers, jiffy enamels, the quick drying varnishes, etc. These are all the outcome of research work done on substitutes for linseed oil, other drying oils and the natural gums and resins, all of which previously were used entirely and for that matter still are in greatest common use. It may be interesting to those not familiar with the subject to know that the now indispensible solid substances known as bakelite, pyroxyline, cellophane, carboloid and the older celluloid are products of the study of Plastic Chemistry.

This study has been extended to color printing inks in a lesser degree. Recently some very rapid strides have been made which have awakened much interest and started many an independent ink chemist in widely separated parts of the country to work on some new ideas, in most cases original unto themselves. Much is soon to be expected from their work.

This article may not plant any especially new ideas in the minds of expert ink chemists but it is hoped it will unify thought on the subject matter. By causing a certain tidal drift of thought through the maze of human ideas and experiences we are most likely to instigate the best and quickest results from human endeavor.

There are three good reasons for attempting to use substitutes for the natural vegetable oils such as linseed, tung, soy bean, castor and the like and the natural gums and resins. First, we need compounded substitues, synthetic or otherwise, constant in chemical make up. Natural oils vary widely in their chemical constituency from season to season according to the weather in the lands where they are grown and extracted. Gums and resins obtained from various localities all vary somewhat. Secondly, we need a cheap but more especially an unlimited supply of the ingredients for our commercial inks from sources within the country. Last and most important we want inks for all practical purposes that will dry as fast as they are printed and with little energy imput and no great addition of apparatus to printing presses of most types now in common use.

This last to the printer may seem like calling for too much but it is not going to prove so. It is thought now that very likely plastic chemistry holds the answer to the problem. Viewed in the light of the following it appears that there are decided factors in its favor.

First let us review briefly the steps that have been taken to get the greatest drying speed using linseed or tung oil color inks, the added apparatus required and the results obtained to date.

It has been found necessary that the oils used in the ink be processed in a highly technical manner. The processing must accomplish two things, i. e., force into combination most of the necessary oxygen and render the slow-drying constituents inactive to a high degree, or extract most of them. The object is to obtain a resulting varnish when compounded with the gums and resins, natural or synthetic, that will dry as little by oxidation and as much by polymerization as possible. Hardening by oxidation (the absorption of oxygen from a surrounding medium) takes time, while hardening by polymerization (change in arrangement of molecular distribution) can take place almost instantly. Both require energy imput but the time element in the first case is the restraining factor, for oxidation by absorption cannot be eliminated to a point where it becomes a small element in the drying and hardening of a printed film. This is because if we do, we get an ink that will gradually gum up or dry on inking rolls and plates and skin over in the fountains if the press is stopped for even a brief period. This oxidized film cannot be cut with ordinary solvents, making washup difficult.

In our objective to reduce this time element we add the best siccative or dryer we can find to speed up the oxygen absorbing process, by milling it in with or before the pigment. During drying we add heat to furnish a rapid energy imput and dry in an ozone medium of the highest concentration obtainable to set up the highest potential supply of oxygen. Thus we develop the general characteristics for an oil-bodied ink, namely, one that will not skin in the fountain or dry on the plates at room temperatures in two or three hours but with the addition of as much heat as the paper will stand, 200° to 250° F., and a high concentration of ozone, 6 to 8 mgs. per liter, will become exceedingly reactive and dry almost instantly.

The heat may be supplied from any sort of apparatus that will emanate it or shut it off as quickly as the web or paper is started and stopped. This is very necessary to prevent excessive drying and consequent shrinking of the paper with its attendant troubles. There is no great difficulty in this, as some good heaters have been designed.

Continued Next Month

*Mechanical and Chemical Engineer, Collingswood, N. J. Member American Society of Mechanical Engineers.

The Monotype and the Dry Mat

By JACK GILL*

THE dry mat has contributed much to the betterment of newspaper printing. Also it has done more to put those in charge of line and typecasting machinery on their toes than any other event in recent printing history.

It has caused a revision of the standards of quality that not only shook up the mechanical departments of newspapers but went beyond newspaper mechanics and into the engineering departments of the manufacturers of casting machines and forced them to revise and improve equipment. And out of a few tortured years we are emerging much the better for the experience.

Monotype equipment suffered a full share of the initial shock and monotype operators were faced with new problems. Called upon to produce material that had to be close to perfect without seriously impairing production was no small part of the problem in the early days of the dry mat.

Good workmanship alone was not enough. Methods and equipment had to be considered. Conscious of the need, the Monotype Company came to the rescue by developing cored molds to cast thirty and thirty-six point type. This new pattern of mold eliminated air pockets encountered in the old mold and gave a product that would resist practically any amount of dry mat pressure.

Incidentally, this type of mold not only improved the quality of the product but also increased the quantity and made considerable savings in the metal bill. Due to the core in the mold, type is made with approximately thirty-five per cent less metal and the operator is enabled to run the machines at a higher rate of speed. So much for the builders' contribution.

The operator also makes a contribution in increased attention to detail and alert workmanship. He has learned to keep supplementary equipment up to thoroughly efficient standards. Pump bodies, pistons, pump body and piston levers, nozzles and other equipment are not allowed to deteriorate. The successful operator is sure to have extra equipment ready to replace that which begins to show lowered efficiency. He does this as a practice of real economy.

RULE AND MATERIAL MAKING

One of the difficulties encountered in dry mat printing is the production of satisfactory rule faces, particularly liner (want ad) rule on a two-point body. Liner rule is, of course, little more than a hair-line rule. Some plants meet this problem by using brass but this causes considerable loss of time in the "break-up" of pages.

A personal experience (in connection with a direct pressure dry mat press) in the production of a rule that has given splendid results might be of interest to readers of PRINTING EQUIPMENT ENGINEER.

Encountering some trouble, we proceeded on the theory that a rule homewhat higher than the usual 0.917 in. to 0.918 in. might give better results. We ordered a special rule matrix to cast to a height of 0.921 in. Trying it out, we found that the rule stood up perfectly but it was holding the type out of print.

The matrix was then stoned down and tried at several heights and the happy medium was reached when the material measured .9195 in. The rule has been cast at that height for a period of about five years and splendid results are obtained.

The general theory is that sharp rule faces should be close to the lower level of allowable printing height, 0.917 in. This is true in practically all cases and particularly in the height of column rule. But in the one instance of liner rule it was found that a higher rule face gives better results. Liner pages are closely packed with type and the rule must have a chance to impress itself into the mat.

So far as other faces of rule or border material are concerned a Monotype Material-Making Machine, correctly adjusted and competently manned, and equipped with good pump, piston levers and bearings will produce solid material. It is important that the weld of the face be properly matched and the closure correctly placed.

THE GIANT CASTER

The Monotype Giant Caster is another contribution on the part of the manufacturers to the improved appearance of the modern newspaper. It made its appearance when the dry mat process began to sweep the country.

The range of this machine has been extensively increased since first it was put on the market. Recent improvements can be attached to the older machines. The original range was from 42 point to 72 point material. It now has a range of from 14 to 72 point.

New molds have been designed, both for base and type, giving this material even greater structural strength to meet the conditions of dry mat printing. The same rule holds for this machine as for any other line or type-casting machine and that is good workmanship and supplementary equipment properly kept up.

Competent monotype operators feel that they owe a debt to the dry mat development. And for that matter all mechanical departments are under the same obligation. The dry mat woke up the newspaper mechanical departments by placing a premium on high-

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*Monotype Department, *Cleveland Plain Dealer.*

Engraving by Means of the "Electric Eye"

By FREDERICK F. UHL

FEDERAL GOVERNMENT officials identified with printing and engraving, also engravers, artists and photographers representing various commercial concerns in Washington recently witnessed in that city the first public demonstration of a photo-electric engraving machine, invented by Walter Howey, editor of International News Photos, Inc.

Mr. Howey has been at work on the machine for 30 years. He began to develop it with the idea of making photographic illustrations available to newspapers, particularly those that lacked engraving facilities.

The advantages of Mr. Howey's device, it is claimed, are that it will turn out cuts in one-tenth the time now required and reduce the present cost by two-thirds. It eliminates the necessity of re-photographing pictures on metal to produce a cut and also dispenses with chemical and finishing processes.

Mr. Howey's device engraves a halftone and routs a cut at the same time. It will automatically make a positive halftone from either a negative or positive subject without taking any of the steps necessary in photography. It will automatically engrave a relief printing block for impression printing or an intaglio rotogravure type of block for roto printing at the throw of a switch. Also, it will automatically engrave and automatically reverse reading matter without reversal, as now practiced in photoengraving.

This picture was reproduced directly from a zinc plate made on the Howey Automatic Photo-Engraving Machine. The zinc is about 0.010 in. thick. The stylus cuts into the zinc plate more or less as motivated from a photo-electric cell through greatly amplified power.

The mechanism is mounted upon a small cabinet supported by casters so that it may be moved about at will. The apparatus is ready for operation when plugged into an electric light outlet. A 45-volt dry battery furnishes current for the photo-cell circuit.

The machine consists of two metal cylinders (about 3 in. diam. and 10 in. long), each of which is mounted at opposite ends of an aluminum-topped table. On one cylinder the operator fastens the photograph which is to be duplicated on metal. On the other he wraps a piece of zinc, approximately 0.010 in. thick, the same area as the desired cut. By pressing a button he sets the machine in motion.

As the cylinder revolves the photograph, an "electric eye" scans the photograph and casts lights and shadows into a photo-electric cell. The electrical output of the photo-electric cell is amplified 48 times. The power of the electric impulse as it comes from the photograph is 1/10,000,000 of a watt and is amplified 2,000,000,000 times in the cutting head to actuate the cutting tool which engraves the lines in the zinc plate.

According to W. E, Wines, manager of the mechanical department of the A. N. P. A., the first step in the operation is to mount the copy on the copy cylinder. A small area of the copy is brightly illuminated, and the light reflected from this bright spot is focused on the photo-electric cell by suitable lenses. As the cylinder rotates, the carriage carrying the photo-cell moves parallel to the axis of the cylinder, thus viewing or scanning the copy in a helical path.

"The actual engraving operation, that is the cutting of the plate, is similar to the cutting of a thread in a lathe, an operation with which every machinist is familiar. The cutting tool is V-shaped and is mounted on a carriage which moves parallel to the axis of the cylinder, while the photo-cell moves parallel to the axis of the copy cylinder. The tool does not rotate.

"The depth of the cut made by the tool varies with the tone value of the copy. When the photo-cell is viewing or is focused upon a dark spot of the copy, the tool makes a very light cut thus removing very little metal and leaving more for the printing surface. When the photo-cell is on the high lights of the copy, the tool digs in deeper, cutting away more metal and leaving less for the printing surface. The depth of cut—corresponding to the depth of etching in an ordinary halftone—varies from about 0.002 in. in the shadows to about 0.006 in. in the high lights, with corresponding depths for intermediate tones.

"Within limits, the depth of cut or depth of the engraving can be varied to suit the copy. Thus in the case of a very dark photograph, it is possible to adjust the machine so as to make a somewhat deeper cut than that used for normal copy, thus producing an engraving somewhat lighter in tone than the dark copy. The adjustment for depth of cut is made after the copy is in place on its cylinder, before actually starting the engraving. This is done by focusing the photo-cell on the darkest portion of the copy and then adjusting a knob according to a tone indication on a scale of tints. The cell is then moved to the edge of the copy, the tool is located opposite or near the edge of the zinc, and the actual engraving is started. The rest of the operation is

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The Effect of Rubber Rollers

By Robert Reed*

The World War was largely responsible for the evolution and development of a printer's roller made of rubber. A great demand for glycerin in the manufacture of munitions brought about this change. Some substitute was in demand. The early experiments in the development of rubber printer's rollers made of rubber. A great demand for great obstacle which had to be overcome, namely, the natural deteriorating action of oil on rubber. It was easy to make a hard rubber compound which was unaffected by action of oil in news ink, but such a compound would not function when made up in a printers roller for use on newspaper presses. Because of hardness, form rollers would not properly cover stereotype plates. After a year or more of exhaustive tests, a soft rubber compound which had all indications of being satisfactory was offered to the trade. It functioned fairly well until the oil in the news ink had an opportunity to act on the rubber with the result the roller expanded to such a degree that the adjustments on the roller sockets would permit of no further swelling. It was necessary to remove the roller. Endeavors were made to salvage the roller by regrinding, but the action of the oil in the news ink had been so great that the rubber could not be reground and polished to its original state. Laboratory experiments were conducted unceasingly with the one objective of developing a highly oil-resisting compound which was soft enough to function satisfactorily as a form roller on a newspaper press. It is said it is darkest just before dawn. Likewise, with failure of producing a satisfactory compound almost certain, rubber rollers were produced. The chemical engineers were becoming very much discouraged and were quite skeptical of producing the necessary oil-resisting compound, when the use of new chemical ingredients employed in the manufacture of other rubber products for the oil industry produced a much improved roller compound. This happened in 1920. During these three years the heartiest cooperation of executives in the mechanical departments of newspapers was always to be had.

From the latter part of 1920 and the first of 1921, the use of rubber printers rollers increased by leaps and bounds. Today many newspaper plants have had hard rubber rollers in continuous service since the years just mentioned.

The development of the newspaper press was temporarily retarded, during the world war, but after the armistice great attention was given to newspaper presses of high speed. It is well known what has been accomplished in this field. Rubber rollers were a great factor in making practical the higher speeds of newspaper presses, as frictional heat developed in the operations of these presses had no apparent effect on the roller.

There is an old Chinese axiom, "A picture is as good as 10,000 words," which has been put into every day use in recent years in the make-up of newspapers. This is evidenced by the pictorial pages of standard newspapers and the great popularity of tabloid newspapers. Rubber rollers have helped greatly to encourage the use of pictures in the daily newspaper. The roller contains no ingredient which attracts the dust prevalent in the pressroom. Therefore, these rollers require no washing, and are as clean at the end of the run as at the beginning. The high lights of cuts are kept clean, and the solids are printed black. It has been proven that the type matter has been printed sharper.

Atmospheric changes in different climates have no material effect on rubber with the result great satisfaction was derived from their use in climates where such changes were always to be feared. They function just as well in the cold wet climates at they do in the hot dry regions.

The use of rubber rollers has been further increased by the knowledge that the users may recondition them after they have been in service a long period of time. Several newspapers have equipped themselves for regrinding and polishing, thus prolonging the life of their rollers to a great degree.

It is generally recognized that best results are obtained from rubber rollers used in connection with inks that do not have a great amount of dryer in them. Thus rubber rollers in regular newspaper work, both black and white and color press work, have proven very satisfactory. Also on cheap magazine work where inks are used with no dryer, rubber rollers have been found very practical.

The general use of rubber rollers today has confronted the press room with some problems, namely: How to set them for best printing results; whether soft or hard rubber is best; the effect of ink and oil causing them to swell, and the regrinding.

Due to varied conditions in the different pressrooms it would be impossible to state what amount of pressure should be used. Set the rollers with a slip sheet between two pieces of paper, or by throwing the rollers off and then locking up with only a single sheet of paper between the surfaces to cover and judging proper setting from the width of the streak left on the paper. The tendency is to set rubber rollers harder than composition rollers because they will not melt. If they are set too hard they will not turn freely on slow motion, they will not print clearly on speed and they will also wear the bushings in the roller sockets. If possible it is well to not only put paper for setting on the ends of the roller, but try the middle as well.

*Superintendent of Black Pressroom, The American, Boston, Mass. Abstract of Paper delivered before the convention of the Printing Industries Division, A. S. M. E., Washington, D. C.

Rubber being hard, will have a tendency to throw off in the center. To overcome this it is necessary, on some types of presses, to have the rollers ground with a graduated crown from center of roller to each end of 0.010 in. to 0.035 in.. I believe a 5/16 in. bearing on all surfaces is a maximum and ¼ in. a minimum to go by. Due to rubber swelling after being used, it is well to check up settings from time to time.

The next question is whether soft or hard rubber makes the best roller. I prefer the hard roller as it will stand up longer before needing regrinding and will regrind more satisfactorily.

There is a big advantage in having the equipment to regrind your rollers as it is less expensive and you will be able to keep them in perfect condition by not letting them go too long.

Form rollers need grinding more often than any other kind as the wear is greater on them. There is a big difference in the way they regrind and experience is the only way to determine this. On form rollers buffing after grinding with an emery wheel will put a smooth face on them. Sometimes it is necessary to use a coarse sandpaper first and finish with finest sandpaper made.

The body consistency of rubber rollers is such that they will withstand abuse in handling and no matter what the speed at which the rollers are operated they will maintain their true shape.

Newspapers with small circulations require speed as well as the larger metropolitan dailies. A form roller traveling at a speed as high as 3,500 r.p.m. needs a covering that will maintain its perfect shape. It has not as yet been determined at what maximum speed rubber rollers may be operated. By direct comparison the ordinary composition rollers will not meet the demand of this excessive speed since they are thrown out of shape by centrifugal force and eventually loosen from the core.

The surface of a rubber roller absorbs a certain amount of ink. An excessive absorption naturally causes swelling or increase in diameter. Rubber rollers possess "tack," thus enabling them to pick up, distribute and apply the ink so as to obtain a sharp, clean-cut impression.

Further improvement in rubber rollers is bound to come about due to the benefits to be derived from research work on antioxidants, accelerators and vulcanizing methods. Then too, there is the question of regrinding. Many newspaper plants have installed grinding equipment at great cost and much money has been wasted by having rollers reground by those who were inexperienced. All of this will adjust itself. Standards will be set up which will definitely determine when and how a rubber roller is to be reground.

HUMIDITY AND RUBBER ROLLERS

By J. C. DUNN*

Roller equipment on newspaper presses has been the source of considerable discussion for some time. That composition rollers did a good job for many years no one will deny. However, standards are constantly changing and with the demand for speed, and more speed, something else was required.

When it is considered that rubber has a natural affinity for oil, it can be readily understood that difficulties are encountered in concocting a compound and building a roller which will successfully withstand the detrimental action of oil and frictional heat.

First, let us consider temperature changes. In the United States a drop or rise of ten to twenty degrees F. within a comparatively short time is not uncommon. Then, too, there are frequent long periods of high temperatures as well as the reverse. Also consider sections subjected to high humidity which produces a condition of excessive dampness. This is often exaggerated by the location of the pressroom, particularly in buildings of more or less modern construction and design. Frequently the pressroom and mailing room are combined. The opening of doors for the delivery of papers to trucks subject the press to direct drafts.

The various effects of these different atmospheric conditions on rollers are well known to every pressman. Rubber rollers successfully withstand these conditions and endure continuous subjection to extreme temperature. They are dependable, they will not shrink, swell or sweat.

In the second place, rubber rollers are economical. Their longevity of life has been a revelation. Pressmen who are using them appreciate what it means to install rubber rollers and then "forget" them for months at a time. In former years a considerable expense was involved in resetting, washing and the frequent replacing of composition rollers because of checking, blistering or shrinking.

*Vulcan Proofing Co., Brooklyn, N. Y.

PROPER REFINISHING OF ROLLERS IS ESSENTIAL

By E. L. CECIL*

To obtain satisfactory service and long life rubber rollers must be properly refinished. Newspapers have been greatly handicapped in this respect due to the comparatively recent, rapid introduction of rubber rollers, and a lack of information as to proper equipment and methods for handling this all-important phase of rubber roller operation.

A refinished roller should have a true, even-grained surface. This applies to intermediates, vibrators and feeders. The form rollers should be polished to a high gloss finish and when examined under a magnifying glass the slightest trace of grain or roughness should not show. Only the polished rubber should be visible.

Rollers refinished properly can be set lightly and will cover without pulling in. If it is necessary to pull in a roller in order to cover, it should be returned to the grinder immediately, as irreparable damage may be done.

Fully 75% of the swelling in a roller can be traced to poor refinishing. A small amount of initial swelling will take place in a roller, due to the ink and oil penetration. It should be set off a little to compensate for this. If not set off, it will continue to swell from the heat generated by the excessive pressure. Once this swelling is started from heat expansion it pyramids very fast, showing up in badly overheated sockets, lifting or wiping on heavy face type, streaks, and blacking on plate heads and tails, and if allowed to go to extremes, eventually causes the rubber to break loose from the roller stock.

We cannot stress too strongly the importance of proper refinishing, if satisfactory service and long life is expected from rollers. The life of a roller may be shortened as much as 59% by neglecting this all-important point.

*General Manager, Dustless Equipment Co., Washington, D. C.

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Dry Mat Manipulation

By Dry Mat Bill

Everyone recognizes the need of research and experimentation to further advance the stereotype art.

The art of stereotyping or the reproduction of the original type-and-cut composition is more complicated than at first appears. A great many factors enter into the accomplished results, one of the most important of which is the human element.

How many publishers are suffering from poor printing, costly upkeep of the equipment, losses of metal by oxidization through overheating, throwing floor sweepings into the metal pot, and many, many other operations, through the erroneous idea of employing just anybody that might have a slight idea of stereotyping without the years of education and practical knowledge required to turn out a skilled operator?

How many men are there in the stereotyping trade today who really understand the fundamentals of stereotyping and have the mechanical knowledge, inclination and initiative to be really good stereotypers?

How many are there in the trade who, because they have appeared every day at their work for a decade, have the erroneous idea that they know everything there is to be known about stereotyping and thus, through their attitude and state of mind, have ceased to keep abreast of the recent rapid progress of the art?

The best stereotypers are those who realize there is a great deal of improvement to be made in the trade, have open minds at all times and are willing to try out new innovations no matter how different from the accepted methods in use they may appear to be at first.

Besides requiring a thorough understanding of the fundamental principles of the process of stereotyping, the stereotyper must have the complete cooperation of the other mechanical departments, namely, the composing room, press room, and engraving room, in order to provide real printing satisfaction.

Faults in the makeup of the page form are rarely adequately overcome in the process of newspaper stereotyping. A perfect printing surface on the stereotype plate may be weakened considerably in the press room. The pointing out of these facts is an endeavor to provide a way to secure harmony of operation in the mechanical departments so as to obtain the same excellent printing results that are available to almost any office where the harmony of operation by and between mechanical departments now exist.

Pardon the digression from the main issues in this discourse on stereotyping. Naturally, the first thing to be taken up is the dry mat.

There are various dry mats on the market today, both domestic and foreign, which, from a manipulation standpoint are all good, but like all manufactured products, some are better than others. All of them, however, have their advocates.

There are two kinds of construction from a stock standpoint. The first is of rag content base and the other all-wood pulp.

The good points of the rag content mat are its ease of manipulation through its pliability. Buckles are less troublesome. If they should occur, the bad ones as rule can be ironed out easily and the lesser ones may be ignored, as the weight of the metal in casting can be counted on to iron them out. They humidify easily and quickly due to their more porous texture and thus lend an advantage for rush work. This porous texture induces more rapid scorching which lends speed to operation and minimizes the chance of trouble from chills.

The wood pulp mat, as a rule, is a good printer. It has fine stayback, flexibility, takes a heavy impression without fracture and holds the impressions. While the wood pulp is a little harder to condition, it becomes plastic in seasoning which tends to get better impressions and when scorched is harder and has more life.

Further improvement of both types of dry mats has been attempted through the use of various kinds of facings. The first effort in the use of a facing was intended to provide a filler for the porous condition of the face of the mats, thus tending to secure a smoother surface, which naturally would be expected to make a smoother printing surface on the plate.

The general improvement of mats, however, by some mat manufacturers as far as texture is concerned has eliminated the necessity for facing to fill up the pores of the mat and of recent months the facings have been changed in an endeavor to provide a ready release from the plate cast, thus permitting numerous plates to be cast when necessary.

Various types of facings have been tried and while some of them are very good indeed, there are some things to take into consideration before satisfactory manipulation through the use of facing can be secured.

Every stereotyper knows that upon first examining the mat before moulding, the appearance of the mat may seem perfect and the facing will mould nicely on screen work and show sharp impressions. Yet, if the base stock is not there, the facing is not going to be much of a help in securing release or printing quality. In moulding every stereotyper knows that unless conditions of the form are perfect (which they never are) a mat is often cut by sharp line rules, zinc etchings with burrs, etc., which naturally fracture the layers of pulp, including the facing, thus voiding to a great extent the facing of being of any service. The mat will pull in these places, so it has been a general practice in

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The Complexities of Newspaper Printing

By THE A. N. P. A. AND A. A. A. A. JOINT COMMITTEE*

This report differs from its predecessors in that it concerns itself solely with the handling of advertising material by the Mechanical Departments of newspapers. The publication of its predecessors, "Electros vs. Mats," and the "Etching Depth of Half-tones," brought from the Committee members representative of the Advertising Agencies the comment that the work of the Committee should not be confined entirely to the preparation of material, but should lend itself in at least one report to the faulty handling of advertising materials in the composing room, stereotype department or press room of newspaper offices.

It is acknowledge by all the members of the Joint Committee that there is a great variation in the printing by individual newspapers of identical advertising material. The results obtained by some newspapers have elicited praise and commendation, whereas the very same material has been poorly printed in other newspapers.

This report covers only those processes not covered by the previous reports, and also describes the safeguards which must be set up in newspaper offices to overcome some of the existing printing faults.

MANY well-planned advertising campaigns are spoiled by failure to properly adhere to rules which, while they may be evident to many, are overlooked in either the preparation of copy or in the handling of material after its preparation.

The process of newspaper printing comprises many separate operations, each so important that we believe it essential to outline them in detail.

GOOD COPY

Good newspaper printing does not just happen by "luck" or "accident," but is the result of a number of very intricate processes, all of which must be properly executed by the newspaper. *No advertisement can be better than the original copy.* When the copy is not good in the first place, and suffers material depreciation in each separate operation in the newspaper plant, it is sure to print very poorly in the final results. *Good copy is best defined as that which is prepared with its ultimate use in mind.*

NEWSPAPER HALFTONES

If halftone illustrations are part of the advertisement, original cuts deeply and properly etched, not less than 0.005 in., preferably 0.007 in. in the highlights should be made from copy that primarily shows good contrast and detail. If type matter is used, please bear in mind that small sizes and lighter faces of type do not reproduce as well as larger sizes. The newspaper wants to secure the best printing possible of an advertisement, but can obtain only passable or inferior results if the copy or material be faulty in the first place.

VARIATION IN PRINTING

It is equally true that perfectly good material is sent to newspapers and that some very poorly printed advertisements result. The outstanding complaint so far made to the Joint Committee is of the great variation in printed results obtained by different newspapers running campaigns from identical material. This leads to the belief that some newspapers do not take sufficient interest in the printing of advertising in their papers, or that they are not properly set up to produce the printing result advertisers desire.

ELECTROS

If the campaign goes into a number of newspapers, well-made electros may be used, but care should be exercised to see that in making electros the electrotyper does not lose too much of the depth so necessary to good printing.

An average loss of one-half to one-thousandth of an inch in depth occurs with each reproduction from the original and when a mat is furnished the newspaper there are at times as many as six reproductions of the original before the advertisement is finally printed. When a mat is furnished the newspaper, well-made wet mats are preferred as greater depth is secured, thus reproducing more of the detail of the copy.

MOUNTING OF CUTS

Practical tests made under the supervision of the Joint Committee demonstrated that material used under newspaper conditions when mounted type high (0.918 in.) or not more than 0.005 in. to 0.010 in. over type high produced excellent results. Material mounted below type high was found to produce unsatisfactory results.

FLAT CASTINGS

In making flat casts from mats, care must be taken to see that all moisture is removed from the mat. This can be accomplished by baking the mat in a flat scorcher, or over the metal pot, until the mat is light brown in color. If this is not done, a blistered plate may result. Best results are obtained when the metal is of a higher temperature than ordinarily used in a linotype

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*Abstract of Bulletin No. 3 issued by the Joint Committee. The personel of the committee is as follows: C. D. Carr, *Production Manage*, Calkins & Holden; Joseph M. Farrell, *Mechanical Production Manager*, The Blackman Company; T. S. Gamble, Gamble & Company, Chicago; E. W. Greene, *Superintendent of Engraving Department*, Christian Science Monitor; F. H. Keefe, *Committee Chairman*, Publisher, Newburgh News; J. E. Martin, *Production Manager*, New York Sun; Raymond Matteson, *Assistant Mechanical Superintendent*, New York Herald-Tribune; L. C. Michaels, *National Advertising Department*, Cleveland Plain Dealer; Dwight L. Monaco, *Production Manager*, Gardner Advertising Co., New York; Frank C. Palmer, *Stereotype Superintendent*, Jersey Journal; William Reydel, *Production Manager*, Newell-Emmett Company; George M. Rogers, *General Manager*, Cleveland Plain Dealer; John W. Rosenbach, *Mechanical Superintendent*, Buffalo News; George W. Speyer, *Technical Production Manager*, J. Walter Thompson Co., Chicago; George M. Stone, *Superintendent of Composing Room*, New York World (Resigned); and W. E. Wines, *Manager Mechanical Department*, American Newspaper Publishers' Association.

or a curved plate casting box—about 600° F. The box must be thoroughly warmed before casting.

MAKEUP

When advertising material is received by the newspaper it is cast, if necessary, and placed in the page forms with the reading matter content of the newspaper, locked up ready for the molding of a matrix of the complete page from which a curved stereotype plate is made for use on a high-speed newspaper press. As some of these machines produce as many as 50,000 complete newspapers an hour, it is unnecessary to say that every element must be correct.

HIGH AND LOW SLUGS

Practical demonstrations prove that average linotype slugs, of standard formula (4% tin, 11% antimony and balance lead) cast at temperatures of from 505° to 555° F. may sink as much as 0.003 in. in the first molding of dry mats by a heavy duty mat roller. Plates mounted on metal bases will not sink more than one-half thousandth of an inch in seven or more rolls of the mat roller, unless metal that is too soft is used in backing the electros. The Monotype Co. furnishes matrices of column rules which cast rule 0.002 below type high. The Linotype Company and Intertype Company have recently introduced leader matrices that produce slugs 0.003 in. to 0.004 in. low. With matrices punched shallower than ordinarily, they hope to reduce "punching." Often times the impression remains in the blankets and shows plainly in the printing of subsequent editions.

MOLDING IMPRESSION

A dirty appearance in printing will result through lack of sufficient impression when molding a dry mat. Care should therefore be taken to maintain sufficient pressure to secure depth of impression in the lobes of the letters "o," "e" and "a," and between the lines of type to insure clean printing.

CURVED PLATES

In casting a curved plate, best results are obtained by using a good high tin content in stereotype metal (7% tin, 14% antimony, balance lead). The tin content may be varied from 5% to 7%. Uniform temperature of metal is essential for best results in casting—550° to 625° F. Stereotype plates should be made in a water-jacketed casting box, and cooled properly before being removed from the plate finishing room.

PRESS ROOM TEMPERATURE

Temperature likewise plays a major part in the pressroom, at least 70 degrees is necessary (not only during working hours, but at all times). Poor results in printing are common when press room temperatures are permitted to run low during the hours when not in operation, or when cold or unacclimated paper is run through the press. Nothing will harden composition rollers so quickly as temperature variations. *One of the greatest factors in good printing is resilient rollers, properly set.* A form roller covering three to four agate lines of the plate is considered to be properly set, and will not ink the low places in the plate. When rollers are set too tight they have a tendency to wipe the plate, instead of inking it, and when set too light, a grey printed sheet will result. Low temperatures thicken the thin inks that are so necessary for use in high-speed newspaper presses, and prevent proper distribution of the ink.

RUBBER ROLLERS

With the advent of rubber rollers for use in newspaper presses many roller troubles disappeared, but the element of precision in printing became more clearly defined than ever. High and low letters and other defects are emphasized when rubber rollers are used. Rubber rollers lack the softness of composition rollers, and cannot, therefore, be set up so close. It is essential then that the plates be of uniform thickness—no great variations can be present. In the process of molding and casting the extra height used in mounting advertising material mentioned previously is not fully maintained in the curved plates, and to a great part is lost. The plate and blanket cylinders must be as nearly parallel as it is possible to get them, and the cylinder bearings should be right—not much "play" can be tolerated. With proper cylinder blankets, correct impression and rubber rollers, better newspaper printing will surely result.

CYLINDER IMPRESSION

Too much impression will also produce a poorly printed paper, sometimes giving the appearance of ink penetration. Too little impression will cause the ink to lie on the surface of the paper, and the printing will offset and appear blurred.

BLANKETS

Another element in good newspaper printing is proper blankets. Much discussion has been indulged in at the various A. N. P. A. Mechanical Conferences as to the type of cylinder dressing which produces the best printed paper. Without going into detail too much we say with certainty that the pressman must determine that a sufficiently hard surface should be presented to the curved plates to print up the solids, yet be sufficiently soft to reach out for the detail of illustrations or type arrangement. Much pressroom grief can result from too soft blankets or blankets so old and worn as to be similar to planing a form with a wooden block without any padding whatever.

Why Plant Improvements Now

The great problem now is how can we best shorten hours of labor, increase wages, (and therefore the purchasing power of the masses) and at the same time turn out a better, or, in other words, a more usable product.

If these three-fold objectives of invention cannot be kept in balance, all real progress of the world will cease and we will start back on the road to the cave man.

New equipment should be installed now with only the above three-fold objectives in mind.

The argument for plant improvements should not be that the improved equipment will displace labor, but that it will lessen labor, shorten hours of toil and increase the purchasing power of the masses.—*R. O. Vandercook.*

Opportunity Beckons the Plate-Maker

By H. A. PORTER*

NOTE: Every mechanical executive on the mailing list of PRINTING EQUIPMENT ENGINEER is especially urged to read these excerpts from an address by H. A. Porter before the American Photo-Engravers' Association, assembled in their Thirty-Fifth Annual Convention at St. Louis, October 15, 1931.—THE EDITOR.

H. A. Porter, Vice-President Harris-Seybold-Potter Co., talks before American Photo-Engravers' Association.

THE position of the Company which I represent is unique today in the printing press manufacturing field, in that we manufacture equipment for all three methods of printing—typographic, offset and gravure. We recognize a definite place for each method. Each has its distinct advantages. But a new trend is noticeable in the graphic arts. There is a tendency toward combining these advantages, using one or two or even three of them in combination in order to take advantage of the best in each of them and so produce the finest work.

The officials of our company including myself, have no reason for bias in either printing equipment machinery or in plates. We make equipment for each method of putting ink on paper. Consequently we are in a position to think clearly and honestly. Out of this consideration has come a basic conclusion which inevitably will lead you to serious consideration and possibly action.

RESULTS RATHER THAN METHODS COUNT

The question is not primarily whether the growth of offset and gravure printing will lessen the letterpress market and your field; not even whether one or the other processes increases or decreases. Many of the outstanding printers in America today use both offset and letterpress and are adding gravure. Many printers with offset departments have made signal successes, and have contributed much toward putting over the offset process. These men recognize that this is the day when results count rather than particular methods or processes.

A CHALLENGE TO COURAGE

I bring you both an invitation and an opportunity—a challenge to your courage—a thought to intrigue your imagination. Our industry is face to face with a cross-roads in its development. But first let us for clear understanding pause here to define and classify each of the processes of putting ink on paper.

It is unnecessary to describe the letterpress process here. It is your daily work.

The offset process—for so long regarded as "something different in advertising" is no longer new and is here to stay. Gravure is here to stay, and together offset and gravure are running side by side with letterpress in friendly competition in two-way and even in three-way equipped plants.

USE OF GRAVURE EXPANDING

Gravure, of course, is in its infancy but is beginning to grow into a very lusty child. In reality the gravure process is exceedingly simple in technicality. In the case of the sheet-fed gravure press, it consists of an intaglio etched plate locked on the cylinder of the press in the same manner as we lock the zinc plate on an offset press. After the copy is retouched, photographed, and printed on carbon tissue, it is squeegeed on the copper plate, after which the etching process begins. Gradations of color value lie entirely in the wells which are etched into the plate and are determined by the variation in depth of these wells.

BEST FITTED TO BECOME PLATE-MAKER

The photo-engraving industry today, due to its years of experience, and application, and having succeeded in standardizing the production of relief printing plates, particularly four-color process plates, and due to its familiarity with the halftone screen and its application, is best fitted to become the printing plate maker for all three printing methods—typographic, offset, and gravure. I believe that offset and gravure will reach their greatest development only when it is possible for those who have these presses, to purchase their plates in the open market as relief plates are purchased today.

PREPARING FOR NEW METHODS

Consider seriously this proposition. Straight thinking will lead you inevitably to the conclusion that you must master the technique of planographic and intaglio plates. You must have equipment to render service in these new fields equivalent to the service you now render in the production of relief printing plates.

VALUE OF OFFSET PROCESS

Visualize with me the growth and spread of offset. Consider its faithful reproduction of color. Consider how it reflects the artistic feeling of the artist. Consider the soft, natural effect that is individual to offset. Consider that by offset you can reproduce the finest lines, the defined detail, and the contrasting black and white. In a process such as this you cannot fail to see in it your opportunity.

VALUE OF GRAVURE PROCESS

Visualize with me also the amazing advance of gravure. Consider the beauty of its tone values, its adaptability for monotone illustration as well as for color, the fine quality of the work; its value from an illustration standpoint; the wide freedom in paper stocks as is also true with offset.

Consider also that this process, now so successful, is at the very beginning of its development and that in this fact lies

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*Vice President, Harris-Seybold-Potter Company, Cleveland, Ohio.

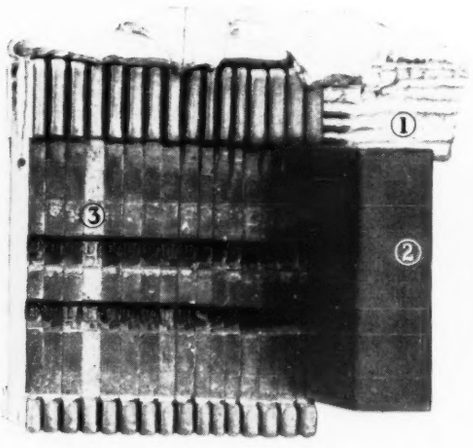
Matrix Separating Block

FRONT squirts sometimes occur on Linotype and Intertype machines from one cause or another. A front squirt usually results in metal filling the matrix tooth recesses. The problem is to remove the metal from the recesses in such manner as to avoid damaging the combination teeth. Submerging the "soldered" matrices in molten metal is objectionable inasmuch as the heat of the metal damages the matrices more or less and withdraws the temper from the spacebands.

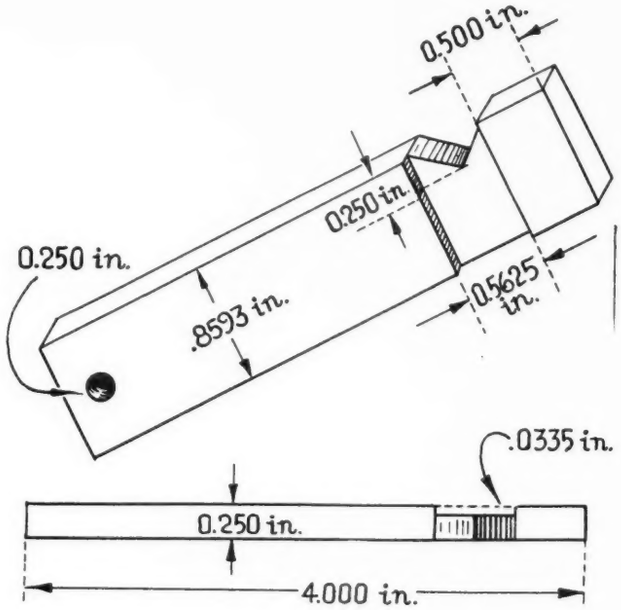
Some of the causes of front squirts are:

(1) Improperly adjusted vise automatic which fails to stop the machine in case of an overset matrix line; (2) The operator forces overset matrix lines into the vise jaws; (3) The operator sends over a short matrix line, possibly 10 ems of matrices when the vise jaws and delivery slide are set for 15 ems which results in one or more of the end matrices "squabbling" in relation to the balance of the matrix line and leaves an opening in front of the mold cell through which metal may be ejected into the matrix combination tooth recess; (4) A misadjusted or non-functioning pump stop on "short" lines; (5) A matrix or spaceband may have lodged in the vise cap in such a position that a metal-tight lockup between the mold and matrix line cannot be obtained; (6) On machines not quipped with a safety attachment, the operator may send over a line in auxiliary position and at the same time neglect to throw the filling piece or "flopper" out of operative position on the vise cap.

A line-casting engineer sends in a suggestion for a block which is designed to assist in the separation of matrices so as to avoid prying apart, twisting and bending them. This device will be the means of preserving all the matrices which have not been injured by the machine. As the metal of a squirt does not form to the exact matrix combination, on account of chilling rapidly, the matrices may be twisted apart easily without injuring the matrices or the combinations.



The block, as shown in the diagram, is made from steel 4 in. long by ¼ in. thick by 0.8593 in. A slot approximately the width of the matrix body 0.05625 in. wide and 0.0335 in. deep spaced ½ in. from the end of the block is provided. A V slot is cut in the gauge ¼ in. deep from the edge of the block to the apex of the V. A hole may be drilled in the end to provide a means of hanging up the block if desired. The block should be hardened to preserve the slot corners while it is being used.



In the photograph *1* represents the metal squirt, *2* represents the block, and *3* the matrices. To use the device, the block is first clamped in a bench vise. Place the group of "soldered" matrices in such a position that the end matrix is inserted in the slot. As shown in the photograph, the matrix to be removed is engaged in the device. Apply a small B. & S. wrench to the other matrices, using care not to injure the casting faces of the matrices. Very little pressure on the wrench is required.

Add Four Linotypes

The New York *Daily News* has increased its battery of composing machines to forty linotypes by adding three new Model 8s and another display linotype.

This display linotype is the fourth to be put into operation in the *News* plant. The first was installed in 1923. The second was added in 1929 and the third in 1930. These four display machines are used for news and feature headlines and advertising display composition.

A Linotype Lead and Rule Caster complements the battery of forty linotypes.

SURFACING MACHINE

. . . *For All Forms of Display Type Metal Printing Material*

This is a precision tool, designed and built with characteristic Linotype workmanship and quality throughout. It is so simple in principle, so certain in operation, so productive in capacity that a five-minute demonstration will amaze you. Production is continuous, and anyone in the composing-room can operate it. Material to be processed may easily be inserted and removed without slowing or stopping the machine. Depth of cut may be regulated to within the fractional part of one one-thousandth of an inch.

Write the nearest agency for the explanatory descriptive folder which gives additional details.

MERGENTHALER LINOTYPE COMPANY

BROOKLYN, NEW YORK · SAN FRANCISCO · CHICAGO · NEW ORLEANS · CANADIAN LINOTYPE, LTD., TORONTO, CANADA

Representatives in the Principal Cities of the World

Linotype Bodoni and Bodoni Bold

Your Linotype Operators Don't Smash Liners On Purpose

You pay operators to set type, and that's exactly what they are trying to do; as much type as possible. It has been found that errors in setting the ejector occur more frequently when the operators are busiest, because they are concentrating on the copy at hand, not on the mechanical part of the machine. That is the time seconds count. At a time like that the operator forgets the ejector . . . what then? The liner must be replaced — that takes time — both the operator's time and the machinist's time. Perhaps the trimming knives are sprung out of adjustment — that takes more time. Maybe the machine has been down ten minutes, maybe it has been down an hour, depending on the damage done. And besides this, permanent injury is done to the mold, the ejector mechanism, the locking studs, and many other adjacent parts. How much does it all cost? It won't take very long for it to amount to a lot more than the price of the Automatic Ejector Set.

THE AUTOMATIC EJECTOR SET

Changes the Linotype Ejector Automatically

It was the Operator's Carelessness— Now it's the Management's Negligence

The Time Saving Device Company, Inc.

599 Kenmore Ave., S. E.

WARREN, OHIO

Some Territory Still Available to Salesmen

For literature and further particulars concerning the Automatic Ejector Set, clip this coupon.

Name .....

Firm .....

Address .....

City ..... *State* .....

Engraving and the "Electric Eye"

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entirely automatic, the machine stopping itself when the engraving is completed. If a border is desired, it is possible to engrave it as the cut is being made, without marking the copy.

"The entire process is extremely rapid. The placing of the copy and zinc in position is the work of only a minute or two. The adjustment for depth can be made in a few seconds. We saw a cut 4 in. by 6½ in. engraved in exactly 7 minutes.

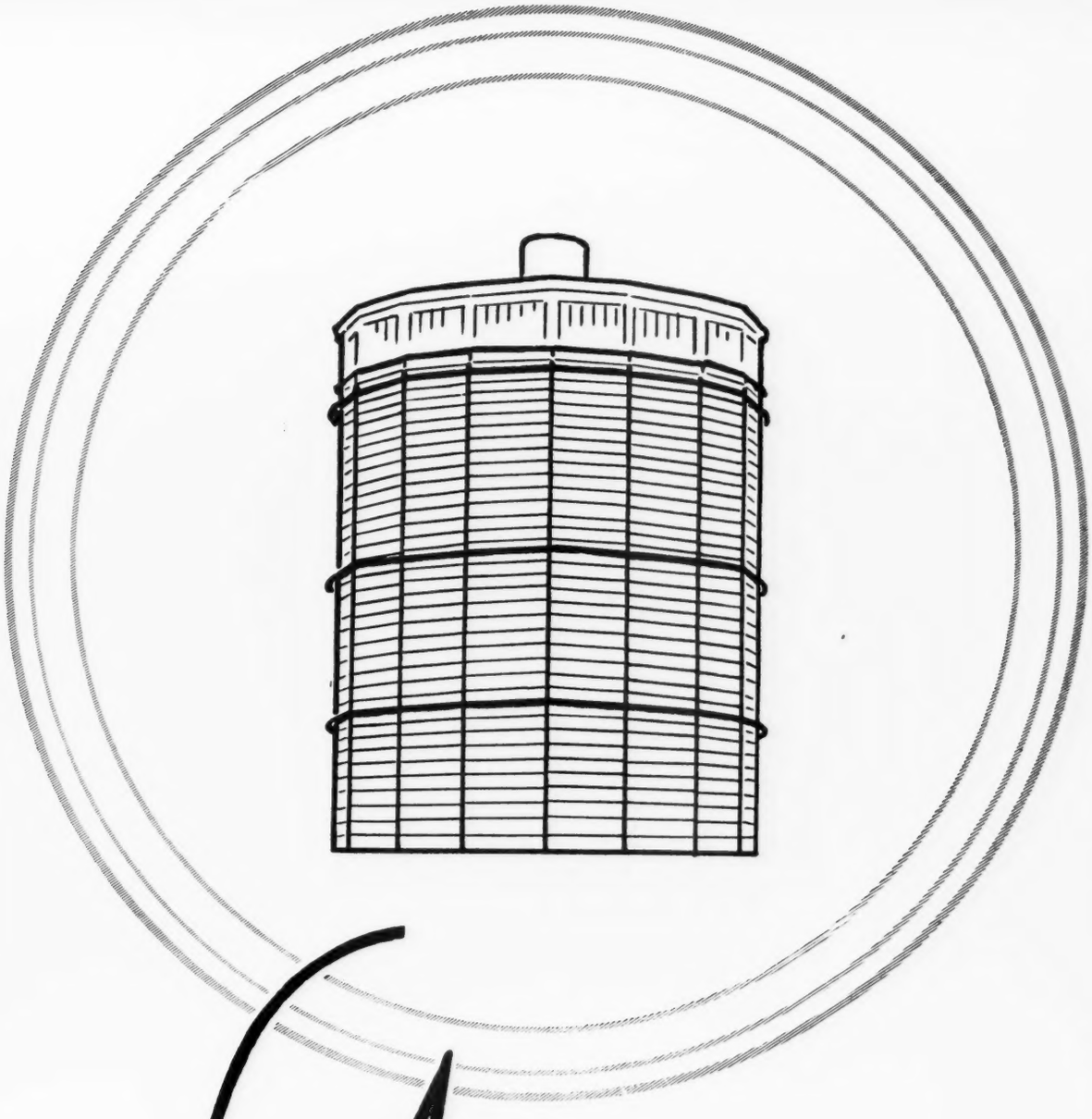
"It has been discovered lately that if the zinc is first ruled or lined by a series of parallel cuts at right angles to the direction of the cuts made by the automatic engraving machine stylus, the resultant effect is a dot formation similar to that of the photo-engraver's halftone.

The Houcy Automatic Photo-Engraving Machine which employs photo-electric cell in transferring light and shadow from photograph to zinc plates in one-tenth the time now required by conventional photo-engraving methods.

The photo cell, lights, lenses, etc., are contained within the box at the right. Just back of the box is the copy cylinder. The cylinder to which the zinc is fastened is at the extreme left, and in front of it is the cutting tool carriage. The change gears are contained within the central box. Vacuum tubes and electrical equipment are housed in the cabinet base.

It is hoped by the use of this machine, to put photo-engraving within the scope of every small newspaper, of which there are more than a thousand unable to afford to make their own pictures at the present time. The total cost of engraving a picture on this machine is considerably less than a twentieth of the cost of making an engraving by the present methods.

"The pitch of the screws used to drive the photo-electric cell and the cutting tool is 70 threads to the inch. This produces an engraving having 70 lines to the inch. Because the cutting tool is V-shaped, the grooves are also V-shaped and there is no possibility of undercutting, which would cause a stereotype matrix to adhere to the cut. The machine as at present constructed is geared so as to cut 70, 140, or 280 lines to the inch."



Gas

FOR HEAT
WHEREVER HEAT
IS NEEDED

From the jeweler's tiny torch to the mighty blast furnace. The free book "Gas Heat in Industry" tells the whole story. Send for it.

AMERICAN Gas ASSOCIATION

420 Lexington Avenue, New York

An Invitation

In the Interest of

Better Mat Performance

IF you have never had the occasion to make use of the service rendered by the Wood Flong Corporation, besides merely delivering good dry mats, let this be a suggestion to you. Call upon a Wood Service Man to look into your stereo problems with you. Let the Wood organization experiment and learn through its research facilities, just what features your dry mats must have to give the results you require.

Our service is at *your* disposal.

WOOD

FLONG CORPORATION

HOOSICK FALLS, N.Y.

WOOD DRY MATS

ALWAYS UNIFORM

Ideas

William Feather, President of The William Feather Printing Co., and Contributor to Leading Publications, Will Make Some Observations for Readers of the ENGINEER *in Coming Issues.*

AN IDEA may be priceless or it may be worthless. An idea hoarded in secret remains only a dream, whereas an idea that engages brains, steel, and power in useful work ceases to be merely an idea and becomes a dynamic factor in human welfare. Therefore, it is not the bare idea that counts, but its application and its consequences.

Emerson had a glimpse of all this when he wrote that a great institution is but the lengthened shadow of a man—a man who can put his ideas to work.

The world saves its big rewards for the men who are both dreamers and doers. In America, once a dreamer-doer begins to breathe the joy of his big achievement, he climbs from height to height—not for dollar rewards but to give his expanding personality a job big enough to satisfy his hunger for man-size employment. He grows rich, but soon reaches the point where money ceases to be his real compensation. He gets his real reward from day to day in worthwhile doing. Nowadays distinction comes from accomplishment.

Offers Substantial Savings

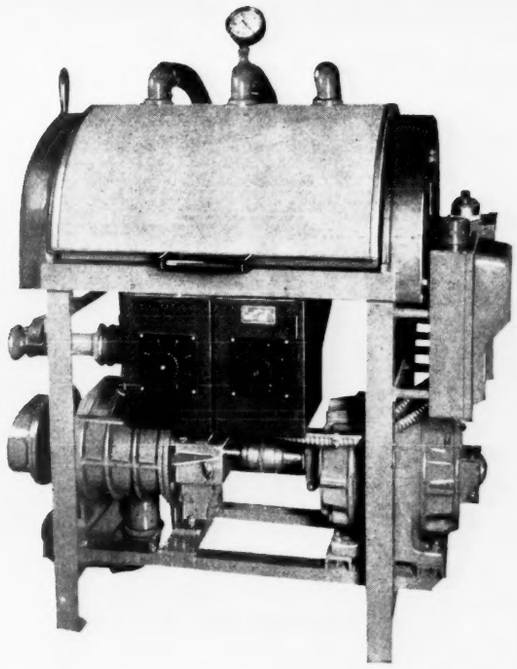
The Oneida Chuck which is being built and distributed by the John Waldron Corporation of New Brunswick, N. J., is said to be one of the most economical and efficient pieces of equipment introduced to the printing industry. Actual operation in printing and publishing plants using paper in the roll has proven that the Oneida Chuck will more than pay for itself in a very short time.

The Oneida Chuck is a new friction collar designed for use on rolls wound on paper cores or rolls without cores. It completely eliminates the need for freight, drayage and handling charges necessary for the return of metal-tipped or steel cores.

Foremost among the many savings provided by the use of the Oneida Chuck, it is claimed, is the economy resulting from the complete running down of rolls to the last thickness of paper. This saving in waste alone represents a very sizeable sum in the course of a given period.

A folder describing the Oneida Chuck will be sent without obligation by the John Waldron Corporation, New Brunswick, N. J.

Modernize Your Stereotyping Plant With A



STA-HI DRY MAT FORMER

the New Model Dual Heat - Precision Machine

INSTALLED in your present stereotype plant a STA-HI DUAL HEAT-PRECISION DRY MAT FORMER gives you the finest and most economical means of preparing dry mats, ready for your Casting Units, that money can buy. Dry mats prepared with a precision casting face—no more buckles, or white holes in black solids on your printed pages. No more hand massaging, boneing, flexing or hand manipulation. Just place the molded and packed dry mat directly in the DUAL HEAT-PRECISION FORMER and in One Minute it is ready for your Casting Units. Start and finish your various editions without stopping to replace defective plates, without excessive impression, hard roller settings, unusual cylinder bearing wear and strain, save remolds, recasts and waste of time and material.

Install Sta-Hi Dual Heat Former Now. Pay by the Month

Sta-Hi Formers can be purchased on easy monthly payments. Write for literature; we can save you time and money and help you produce a Better Looking Newspaper. Any of our nearest offices will cheerfully furnish particulars. Sta-Hi Newspaper Supply Company, Inc., 417 Oregonian Bldg., Portland, Oregon; 1235 Westlake Ave. N., Seattle, Washington; 703 Bendix Bldg., Los Angeles, California, or write our General Agents, THE GOSS PRINTING PRESS COMPANY, Chicago, Illinois.

There is a Sta-Hi Former for any page size, any type of Casting Units.
Especially effective in "Forming" dry mats used with Tubular Equipment.

STA-HI NEWSPAPER SUPPLY COMPANY, INC.
Portland, Oregon—Dept. E-12.

Please send full information regarding your Sta-Hi Dual Heat-Precision Dry Mat Former.

Name .....

Address .....

STA-HI

Burgess Chrome Mats

A Laboratory Product

MANY meetings and conferences of the personnel of both newspaper business offices and mechanical departments have been held from time to time to discuss ways and means to secure better printing results.

Has it ever occurred to you that coincident with the entrance of the Burgess Chrome Stereotype Mat on the market, an accelerated movement towards better printed newspapers was made?

Since the advent of Burgess Chrome Stereotype Mats, great improvement in mats has been experienced, led by the C. F. Burgess Laboratories, Inc. and their research engineers. They are still leading and showing the way, through the newly incorporated division known as the Burgess Cellulose Company.

Burgess Chrome Mats have so often demonstrated their superior printing qualities that they are in general use in more than a third of the newspaper plants throughout the United States and Canada, and yet—every month shows an increasing number joining the ranks of Burgess Contented Customers.

As a user of Burgess Chrome Mats you are assured of better printing, economy and service.

Why don't you let Burgess Chrome Stereotype Mats help you secure better printing? Write for your samples or demonstration now.

BURGESS CELLULOSE COMPANY

Division of C. F. Burgess Laboratories, Inc.

Freeport, Illinois

Opportunity Beckons the Plate-Maker

Continued from page 15

opportunity on a really worthwhile scale for those who will go along with it.

ANTAGONISM BETWEEN OLD AND NEW

It is common to most advancement that there is apparently at first an antagonism between the old and the new. Often new ideas are difficult to accept—full acceptance comes only with the years. There is in reality, however, no reason why in these methods there should be struggle or competition.

BUSINESS IS COOPERATIVE

Today business is cooperative. We realize as never before that cooperation and understanding are the keynotes to growth, and that these together make not only for the advantage and perpetuity of the methods that have proven good and continue to be successful, but for the increase of each, separately and in combination.

There is no reason under the sun why there should be any misunderstanding today or feeling of resentment among those interested in any method of putting ink on paper. There is nothing small about the graphic arts. Nothing mean nor petty about it. As reasonable men it behooves us to face the facts. Instead of combating and fighting one or the other method in our own company, we have recognized that each has its rightful place and that in combination the place of each is of more importance.

VISIONING THE BROADER FIELD

It is not equipment nor any specialized process that you must sell, but the product—the most efficient method for the job. Instead of being bound by the limited classification of a worker in one process only, the broader field is open—beckoning you to now classify yourselves as plate makers to the industry—craftsmen experienced and broad guaged to recognize not only the individual merits of each process of printing and plate making but of all, individually and in combination. There is no one exclusive road to reach our goal of good printing but three great parallel highways of progress.

If it were possible for the average small printing concern to secure offset and gravure plates through photoengravers, it would bring a tremendous development in these fields. This would mean not only that we would sell more presses, but that you would sell a larger volume of plates. Facts such as these end any misconception that the larger interests of any phases of the printing and plate-making industry are opposed to one another.

I do not promise that you can immediately cut in on the plate-making business for the larger concerns. This is something that will have to work itself out, and as I am no prophet, I hesitate to even hazard a guess.

This is an age of specialists in industry. You are the specialists in plate-making. Your opportunity here is limited only as you limit it yourself.

A "BEST PROCESS" FOR EACH KIND OF JOB

In resume, let me point out the universal recognition of the fact that certain jobs are better produced on typographic presses; that others are best produced by offset and still others by gravure. This is indeed an age of combination of processes in printing. Concrete evidence of this is to be found in the tremendous success of *Fortune* magazine, and in the mail order catalogs.

Yours is the right to the new field by heritage. The field is yours today earned by faithful work. It is yours by experience. Take it lest it be lost forever. Do the work well and then even to greater degree than ever before can it be said that "photoengraving is the handmaid of business progress."

When photoengravers produce offset and gravure plates

Why let *"paper troubles"* ruin your pressroom results?

Modern high-speed presses are a great invention, but their actual performance may be limited by the ability of the pressman to keep paper moving through smoothly under all conditions. Exasperating breaks occur, static develops with all its hazardous possibilities, imperfect printing adds to the delays and worries, and the day is ruined by what is termed "*paper troubles*."

Why grope in ignorance?

Ninety-nine per cent of these so-called "*paper troubles*" result from lack of proper moisture content in the paper. Dry paper becomes brittle and brittle paper will break, generate static and fail to give satisfactory printing results.

The remedy is simple. Be sure of the proper amount of moisture in the paper at the time of its use, and results will be gratifying and profitable.

Vapo Systems, Inc., manufactures devices to meet the needs of any printing establishment. Through the use of water and compressed air, and a system of high velocity jets, it is possible to have paper in perfect condition at the time of its use, so that maximum results may be obtained from paper and ink, as well as the press.

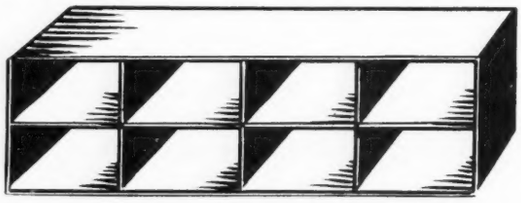
The cost of installation is small, maintenance is a matter of no concern and the savings are so astounding that in most instances they will more than pay for the Vapo Systems equipment in less than a year.

This equipment will prove invaluable wherever paper is used in manufacturing process.

Permit us to explain its specific application to your problems. We shall esteem it a privilege, and you are placed under no obligations.

Vapo Systems
Incorporated

211 West Wacker Drive **CHICAGO, ILLINOIS**



Cut Strips

OF

Gummed Packing Felts

Packed in

Pigeon Hole Containers

Cut 1/8" to 1" any Gauge or Width

Eliminates Waste *Saves Time*

Sold on Our Sheet Basis
No Cutting Charge

Plain Packing Felt
in
Rolls 12" x 36"
Sheets 18" x 28"
Cut Strips

Superior Cork Blankets

Superior Tail Boards

American Publishers' Supply Company

P. O. Box 131, West Lynn, Mass.

with the same fidelity to detail and color that has marked their work in the production of four-color process halftone plates, a new epoch will have been reached in the history of the graphic arts.

Then you will be plate-makers to the industry—not merely to the letterpress division of the industry. Then you will have the satisfaction of knowing that in being awake to the opportunity, you will have increased your sphere—your opportunity—your prestige and your profits.

Dry Mat Manipulation

Continued from page 12

the larger metropolitan dailies where numerous casts are necessary, to use some form of release after moulding in order to bind the fibres of pulp where it has been cut.

There are various kinds of releases which can be used satisfactorily after moulding, but these will be discussed later on to a fuller extent.

Whatever type of mat you prefer to use, it is essential that proper storage facilities be maintained for best results. What would be the use of manufacturers furnishing carefully conditioned mats just to have their efforts voided by careless handling after arrival?

Most mats are packed in bundles of 100, conditioned ready to use, with a moisture-proof wrapping. A storage box should be used that will hold about 200 mats. It must be practically air-tight with an end opening so that each time a mat is withdrawn it will let the minimum of moist air out and dry air in.

Boxes with top opening lid the same area as the mat are practically useless and require the introduction of moisture into the box from time to time. The moisture not being controlled, will cause uneven humidification and make trouble in manipulation.

Good storage boxes may be procured from the mat manufacturers.

The Monotype and the Dry Mat

Continued from page 8

grade workmanship. The old order changed and the new condition imposed demanded not only quantity but quality as well.

The builders of line and typecasting machinery early accepted the new order and improved and are improving their equipment. Certainly, too, dry mat makers are striving toward a better and better product. While there is yet much to be desired, at least we have an awakened and alert industry with a high degree of cooperation in the newspaper plants between mechanical personnel and the various factories.

Machinists and operators of line and typecasting machines should keep in close touch with the stereotyper. Every fault, however small, should be checked, its cause ascertained and corrected. The stereotyper should not be made the "goat" when troubles arises. No one is happier than he when things are going right and the surest way to keep things going right is to keep in close touch with him. For after all, his station is the clearing house for everything that is printed in the paper.

Who Is to Blame
—the Plate Foundry or the Pressroom?

The BOBE-METER puts an end to departmental differences about plates

A Few Users of the BOBE-METER

The Buffalo Times
Jersey City Printing Co.
Rochester Journal-American
Kansas City Star
Chicago Tribune
New York News (two)
Nashua Gummed and Coated Paper Co.
Goss Printing Press Co.
Chattanooga Times
Stahl Newspaper Supply Co.
New York Journal-American
Syracuse Post-Standard
Toronto Type Foundry
Cleveland Press
Detroit Mirror
Pittsburgh Sun-Telegraph (two)
Chicago Daily Times

When a departmental difference over plates arises between the foundry and the pressroom, there is one way of settling it—that is, to use the Bobe-Meter. This instrument gives the foundry or pressroom accurate information by showing in thousandths of an inch any plate defects such as distortion or concavities.

The Bobe-Meter is not a cure or a solution to plate troubles, its function is simply to show low or high spots in thousandths of an inch. Having determined the troubles with the plate it is up to the foundry or pressroom to take the necessary steps to correct the plates. Every superintendent of both foundry and pressroom should use the Bobe-Meter to produce better and more uniform plates.

Let us send you complete information about this indispensable instrument.

Agents wanted for the South

Bobe-Meter Manufacturing Co.
1846 Standard Bank Building, Cleveland, Ohio

"Certified" MEANS "Satisfied"

Better typography, better paper and better ink are, of course, mighty factors in the appearance of any newspaper.

●

But no matter how much money and time is invested in typography; no matter how up-to-date the equipment may be, all these factors may be nullified by the quality of the mat used in the stereotype foundry to convert the flat forms as set up in the composing room into curved printing plates as needed in the pressroom.

●

Experience over a period of seven years has proven to hundreds of publishers that "Certified" on a dry mat is their best guarantee of satisfaction. To depend upon Certifieds means upholding your investment in costly equipment and producing well-printed papers day in and day our on schedule time.

●

We respectfully suggest that you try a case of Certified Dry Mats in your own plant, under your own working conditions, and know what it means to be satisfied with Certified.

●

Forget price! Use quality at the right price! It pays!

CERTIFIED DRY MAT CORPORATION

338 Madison Avenue New York

For dependable stereotyping— use Certified Dry Mats

Made in U. S. A.

Incompetence and Obsolescence

By R. O. VANDERCOOK*

THERE is not a piece of printing machinery today that will not become obsolete in a relatively few tomorrows. Never has there been such activity in the experimental and research departments of manufacturers of printing equipment.

Shall we combine to stem the flood of invention which is throwing into the discard devices that represent millions of invested capital?

The printing business is over-equipped. There is now but little market for devices that a few years ago kept factories humming and men employed.

The only hope for the manufacturer of printing devices is to bring out more inventions, for the machine of yesterday will not sell. There are too many of them idle.

What will these improved devices do to labor? And what will labor, driven to desperation, do to them?

We must face the situation squarely. Thinking men are seeing a way out. Invention can not be suppressed.

Capital, timorus and greedy, will go the limit to save itself. Labor, desperate and hungry, will fight for life. These are facts established by history. Many a contribution to chest funds is made, not through the love of humanity, but because of fear. Hungry animals (human or otherwise), are dangerous animals. The ethics first preached about 2000 years ago seem to offer a way out, and many thinkers have concluded that unless these ethics can control the existing conditions, the seething fires rumbling underneath will break forth in volcanoes, the destruction of which will make the last war seem like a bonfire.

One author, giving as a cause for the present unrest, says the results of invention have not been equitably distributed. Capital has absorbed too much profit. If the returns from inventive skill had been so distributed that labor could have had a corresponding increase in purchasing power and a resultant leisure to develop the fine things of life, there could have been no such conditions as face us today—food rotting on the farms and bread lines in the cities.

It most logically follows that the *wages* of the producers of real value must be maintained and hours shortened. Every manufacturer would like to have the other fellow keep up wages so that the employees of the other fellow can buy his product. What's the use of sending goods to market when no one in the market has money? Does the fact that a manufacturer will not or can not give living wages brand him a bad or an incompetent manager and will it subject him to social ostracism? Incompetent manufacturing methods and obsolete equipment can not be made the means of paying the wages that intelligence and proper equipment will pay. If that idea takes root universally it will

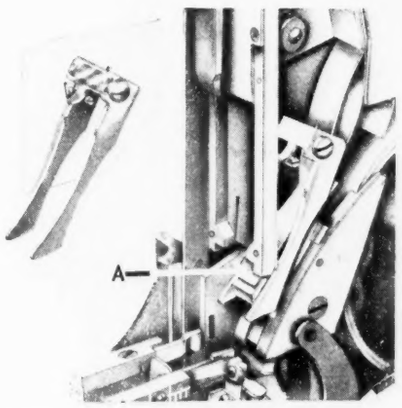
*Vandercook & Sons, Chicago, Ill.

quell the seething forces that are now most evident in the world.

Verily, the old order is passing. Obsolescence in machines, obsolescence in business methods and even obsolescence in so-called morals is driving men to *think* as never before in the world's history.

Latest Printing Equipment Mechanisms

Linotype Assembler Chute Finger



Several features have been incorporated in the design of Linotype assembler chute in order to improve matrix assembly.

Chief among these is the improved Assembler Chute Finger, which guides matrices by the lugs instead of the body and is self-adjusting for any size Linotype face, from 5 to 60 points. It is not necessary to change the position of the finger or adjust it for any size matrix.

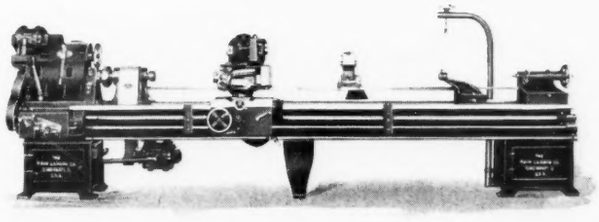
The passage of the matrix through the chute is controlled by the yielding pressure of Spring Extension *A*, while the finger prongs guide the matrices through the chute by contact with the matrix lugs.

Cecil Dustless Equipment

Cecil Dust-Less Equipment for refinishing rubber rollers has been in daily use at the (Washington, D. C.) *Evening Star* for the past three and one-half years. Recently it has been placed on the market by the Dust-Less Equipment Company.

It consists of a high-grade 16"x14' lathe equipped with a grinder and dust collecting unit, and a roller polishing equipment.

This equipment handles all rollers up to and including 7½ in. It requires 35 min. to run a cut across a roller and usually about 30 min. for polishing a roller. Fully 98% of



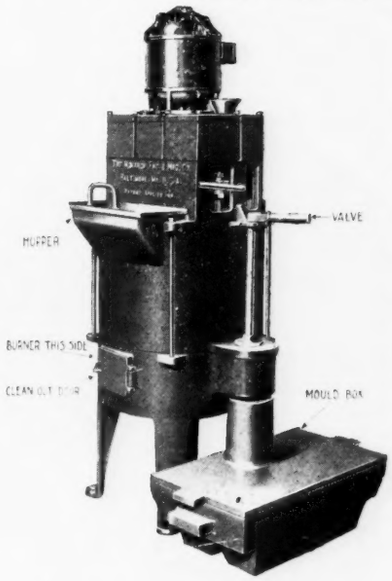
the refuse from the refinishing process is automatically collected.

The complete roller-refinishing equipment can be removed from the lathe in a very short time, making the lathe available for other work in the plant.

The equipment was developed by E. L. Cecil, chief machinist of the *Evening Star* pressroom, Washington, D. C. It is claimed that the special metal cutter developed by Mr. Cecil for replacing the emery wheel when refinishing rollers is meeting with much success.

THE MONARCH METAL RENOVATOR

is used in stereotyping departments for the direct reclaiming of new metal from dross.



It occupies but two and one-half feet of space and is placed preferably near the larger stereotype pots from which the dross is skimmed. The dross can be immediately thrown into the Renovator, thus eliminating storage of same in cans and the packing for shipment to the smelter.

The Monarch Metal Renovator will reclaim from 65 to 75% new metal from your dross, thereby effecting a substantial saving and maintaining the quality of your metal.

Write for Catalog P.E.E.

The Monarch Engineering & Mfg. Co.

701-702 American Bldg. Baltimore, Md., U. S. A.

Works, Curtis Bay, Md.

Are You Cleaning Spacebands By Hand?

—if you are you should write immediately to get complete information on the

Rockaway Spaceband Cleaner

This machine will clean, polish and graphite thirty bands per minute, true the sleeve of band to give a perfect lockup of matrices, lengthen spaceband or matrix life, and save you enough money in a year's time to pay for itself. Don't put up any longer with expensive hand cleaning. Write today and get detailed information and prices without obligation on your part.

THE ROCKAWAY COMPANY

5409 Vliet Street Milwaukee, Wis.

"So you can't see any difference in type metal so long as it's from a large concern?"

"WELL, there is a difference . . . a big difference ... and if you were working in the stereotype department instead of the front office you would find out pretty quick what that difference is. Imperial has the best metal. That's because they manufacture type metal only while other manufacturers make Babbitt metal, castings, lead products, mill supplies, etc. You see when a concern spends all their time on one product they get to know all the fine points about the metal they are manufacturing. Because they know all the fine points you will find Imperial Type Metal cutting down metal troubles, making less dross, saving fuel, and producing sharper and cleaner plates. Now, I wish you would do just what I tell you . . . . order Imperial Metal, because I'm the fellow that is going to use it and I know by experience it pays to

stick to

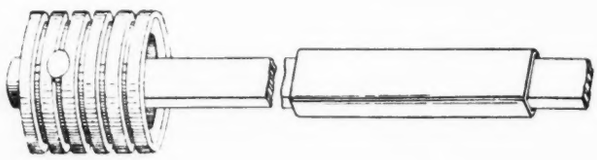
Imperial METAL

THE IMPERIAL TYPE METAL CO.
Philadelphia · New York · Chicago · Los Angeles

New Improvements for Line-Composing Machines

Intertype has brought out an Aluminum Shield which is said to prevent the accumulation of metal on the plunger rod and helps to provide a steady, maximum production of slugs. This device is shown in the illustration.

Fibre Keyboard Driving Gears are also now offered line-composing machine users. These fibre gears are recommended



for reducing to a minimum the amount of keyboard noise. In addition to the reduction of noise, it is claimed that these new fibre gears also eliminate any lost motion that may result from the clashing of metal gears.

New Catalogs, Books and Bulletins

Readers of PRINTING EQUIPMENT ENGINEER who are interested in securing any of the catalogs, books or bulletins listed below can do so by checking the literature desired. Mark carefully only that literature which you wish to receive. Fill out the coupon and send it to us. The literature will be forwarded without cost.

Offset, Flatbed, Rotary and Gravure Presses—New catalogs showing specifications, illustrations, floor plans and authoritative information, prepared by Harris-Seybold-Potter Co.

Magazines, Molds, Liners and Trimming Knives—A four-page folder published by Rich & McLean, illustrating and describing the parts mentioned in the title of this paragraph.

Rubber Roller Refinishing Equipment—A series of Bulletins describing the grinder, the polisher and a roller gauge.

Properties of Lead-Bismuth, Lead-Tin, Type Metal and Fusible Alloys—By J. G. Thompson, U. S. Dept. of Commerce, Bulletin No. 248.

Type Metal Pyrometers—A circular showing inexpensive and accurate heat-measuring instruments with performance guarantee for casting machines, remelt furnaces and large pots in stereo and electro foundries.

Printing Equipment Engineer,
1370 Ontario St., Cleveland, Ohio.
Gentlemen:
Please send the literature checked above without obligation.

Name of Company _____

Attention of _____

Address _____

City _____ State _____

The Effect of Rubber Rollers

Continued from page 11

President G. L. Hammond asserts that officials of the Black Rock Mfg. Co., Bridgeport, Conn., have made a comprehensive study of rubber rollers (including lithograph and rotogravure rollers) and grinding equipment. This company has been aided in research work by the leading manufacturers of rubber rollers and a number of newspapers in various parts of the country. In addition, members of the Black Rock organization have had about 15 years of experience in the manufacture of rubber-cutting machinery. In this connection it is claimed that grinding is cutting.

The Black Rock company furnishes roller-grinding equipment, practically every part of which is designed for efficient handling of every type and size of rubber roller specified by the leading press makers. The rollers may be ground at any point, from the top to the back, permitting the user to grind the rollers straight or with the crown that is due to natural sag. The grinding unit and head are driven by separate motors and the roller is driven through a geared head. Four roller speeds are available for grinding and four for polishing. The machine is equipped with a gauging device which quickly enables the user to locate the roller so that the two ends will be finished within 0.001 in. of the same diameter.

The roller polisher was invented by T. L. Egnor of the New York *World*. This automatic machine, it is said, rapidly and accurately polishes rubber rollers. It may be operated by the same person running the grinder. Four spindle wheels are available through a gear shift. The speed of the pad varies with the speed of the roller. The roller is mounted in oilless bearings. The reversal of the carriage is accomplished by an adjustably mounted cam which trips a load-and-fire mechanism. The polishing pad carries an abrasive roll which contains two or three grades of abrasive as desired. As the abrasive wears it is unrolled and torn off.

A gauge, developed by the B. F. Goodrich company is furnished for measuring rubber rollers. It is constructed so as to eliminated the individual "feel" and provides readings in thousandths of an inch for straight or crowned rollers. The gauge has a capacity from 2 in. to 8 in. inclusive.

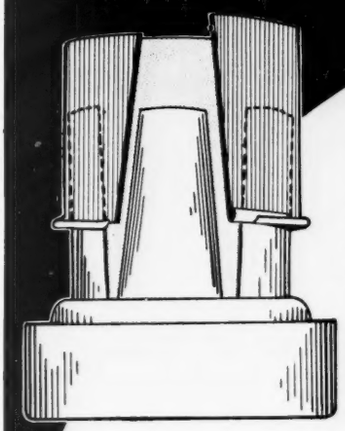
Continued on page 34

Mathematical Wrinkle

Multiplying the circumference of a circle by .3183 instead of dividing by 3.1416 will give you the diameter of a circle. Multiplication is easier than division for most people—*Electrical Production Magazine.*

MONOTYPE PARTS REBUILT
and
New Monotype Accessories
Prompt Service — Less Expensive — All Work Guaranteed
Customers Everywhere—Send for Price List
NEWTON MACHINE CO.
211 High Avenue Cleveland, Ohio

ONEIDA CHUCK



. . . . Here is how it cuts your costs!

It protects the ¼" to ½" of paper on the inside of your rolls that is frequently damaged and wasted by conical or wedge shaped chucks. Oneida Chucks save many times their cost in a month's run.

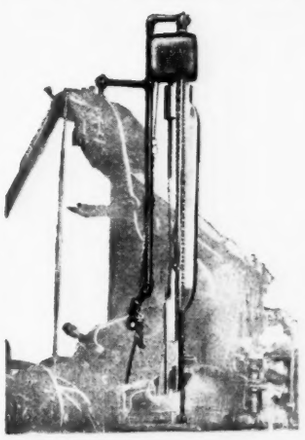
Write for Our Circular "E"

● Tell us diameter of your arbor and inside of paper core or roll for specific information. No obligation.

● No iron or heavy metal-tipped cores are needed. Time and expense for preparing and returning cores is saved. Inexpensive non-returnable cores can be used. Equally good on rolls without cores. Oneida Chucks eliminate the "core account."

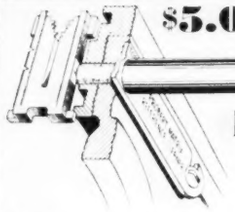
JOHN WALDRON CORP.
Makers of Converting Machines Since 1827
Main Office and Works NEW BRUNSWICK, N. J.

THE MARGACH
Automatic Metal Feeders
for
Linotype
Intertype
Monotype
Ludlow
Elrod



No other article in the Printing Industry can answer its purpose more effectively than the Margach Feeder, which not only sells for the moderate price of $75.00, but its life of 100% efficiency is guaranteed for ten years—and will undoubtedly last indefinitely, 10,000 users can testify to this. Among our sales representatives are the Mergenthaler Linotype Co., Intertype Corporation, Lanston Monotype Co., and the Ludlow Typograph Co.

MARGACH MFG. CO., INC.
HERMAN DIAMOND, President
213 CENTRE STREET NEW YORK CITY



$5.00 Buys This New Improved Matrix Cleaner

—that automatically cleans and keeps reference side of mats bright and shiny. Works as type is set. Easy to attach to all makes and models.

USED BY

F. J. Heer Printing Co., Columbus, O.; Lima, O., Daily News; Standard Register Co., Dayton, O.; Dayton, O., Daily News; Central Trade Plant, Grand Rapids, Mich.; Saginaw Daily News Yeager Typesetting Co., Columbus, O.; Journal Publishing Company, Meriden, Conn.

PROBERT TYPESETTING CO.
211 S. Ludlow Street, Dayton, Ohio

In answering these advertisements say you saw them advertised in PRINTING EQUIPMENT ENGINEER.

KEEP INFORMED
For an impartial analysis or physical examination

Send your [TYPE METAL / PAPER / INKS / GLUES / Etc.] *periodically to*

Mariner & Hoskins, Inc.
222 West Adams Street Chicago, Ill.
Chemists for the Printing Industry

Don't forget! Mention PRINTING EQUIPMENT ENGINEER *when answering these advertisements.*

CLEANING MATRICES
SCIENTIFICALLY

CLEANALL does it . . . without harm to the mats . . . . only a few minutes for a font.

Numerous re-orders over a long period of time received from satisfied customers.

It not only removes dirt, graphite, grease, etc.,—restores the original lustre of the brass, but in addition makes it tarnish-proof for some time.

A FREE Sample and Descriptive Circular Sent on Request.

LINOTYPE PARTS CORPORATION
270 Lafayette Street, New York City — **314 West 10th Street, Kansas City, Mo.**

Manufacturers want to know where you saw their advertisements—tell them PRINTING EQUIPMENT ENGINEER.

Linotype and Intertype Repair Service

Molds—side knives—back knives—1st elev. back jaws—spacebands—dist. box bars—2nd elev. bars—magazines—motors—dist. screws made like new—driving shafts bushed—general repairing of parts. Also make special Linotype and Intertype tools—Matrix ear file gauge $2.50—magazine expander $4.50—magazine broach $4.50—liner cutting gauge $25.00—fiber motor pinions for all makes of motors and special pinions made to order.

William Reid & Co. **537 S. La Salle St. Chicago · Illinois**

Advertising in PRINTING EQUIPMENT ENGINEER *keeps you informed on new and improved equipment for the printing industry.*

HIGH PRESS SPEEDS IMPOSSIBLE WITHOUT RUBBER ROLLERS

By WM. C. BOERNER*

The rubber printing roller is the greatest mechanical contribution towards pressroom efficiency developed during the present generation. Without it, presses running at speeds of 50,000 impressions upward per hour would be a practical impossibility. Rubber rollers have made possible the introduction of economies hitherto unthought of. Presses running at extra high speeds, such as are in operation at the New York *Times*, New York *Post*, New York *World-Telegram*, New York *Journal*, New York *Herald-Tribune* and other publications have increased production per delivery from 50% to 80% over production secured from the older presses replaced by modern machinery. Rubber rollers have made this high speed possible as composition would not endure, even a reasonable period on these presses.

Two presses running at 50,000 per hour can match the production of three presses running at 30,000 per hour. This single factor is responsible for incalculable economies. Other economies are apparent because fewer pressmen are used as less deliveries are needed in order to get out a regular production, fewer stereotypers and plates are needed because of the decreased number of presses.

A major factor is the matter of continuous production in the pressroom. A press using rubber rollers properly set need never be stopped during a run for roller trouble. The melting of composition rollers has been the cause of considerably delay in meeting production schedules in pressrooms, often causing the pressroom force to run into overtime. This condition was general in practically all of the metropolitan dailies prior to the installation of rubber rollers.

*Rubber Printing Roller Division, American Wringer Co., Woonsocket, Rhode Island.

ADVANTAGES OF RUBBER ROLLERS

By G. G. CARTWRIGHT*

Some of the chief advantages of rubber rollers are as follows: They are not affected by climatic changes. They can be run the year around, with very little adjustment. Adjustment is necessary only when a slight swelling action of the rubber occurs, due to oil in the ink. Rubber rollers do not require washing, as dirt does not gather on the rollers.

The great advantage in rubber rollers, however, is their durability. With occasional regrinding, they will run for many years. Rubber rollers require regrinding owing to the fact that oil in the ink eventually causes the rubber to swell, making the rollers too large for any further adjustment. The roller can be ground down to the proper diameter and is practically as good as new. In the average newspaper plant, rubber rollers require regrinding about every three years. Many of the large newspapers are putting in their own regrinding equipment.

Rubber rollers, treated with a patented coating process, are being used for high grade, commercial printing. This coating process is controlled by the Ideal Roller Manufacturing Company of Chicago, Ill., which company holds a process for the application of composition coating over rubber rollers.

Goodyear manufactures a very soft rubber roller, which is designed especially for high-grade printing. This type of roller is much softer than our regular newspaper rollers.

The New York *Herald-Tribune*, which recently won the N. W. Ayer Award for the best printed newspaper for the year 1931, was printed on a press completely equipped with rubber ink rollers.

*Goodyear Tire & Rubber Co., Akron, Ohio.

THE quality of the type produced by your machines is controlled directly by the quality of the metal in the machine pot.

Use Blatchford Metal « the product with a reputation for unquestioned quality backed by 75 years of metal mixing experience.

Don't neglect your metal. « Keep it in perfect working condition at all times. » Let us help you do this « use our laboratory service. « We will gladly make a chemical analysis of samples submitted by any printer or publisher and render a complete and impartial report.

GOOD METAL IS ALWAYS MORE ECONOMICAL

E. W. BLATCHFORD COMPANY

blatchford

LINO - MONO - INTER - LUDLOW - TYPE CASTER - STEREOTYPE

METALS

63 Park Row, New York City

E. W. BLATCHFORD COMPANY — REPUTATION — EST'B 1854 — INCO. 1890 — A TOWER of STRENGTH.

608 So. Dearborn St., Chicago

LUDLOW SYSTEM OF SLUGLINE COMPOSITION

PROVIDE FOR EFFICIENT PRODUCTION IN YOUR COMPOSING ROOM, TOO

IN these times, when cost is a factor of such real importance, eliminate unnecessary operations in setting your job and display composition.

The Ludlow, with which the compositor converts the line in the copy into the slug in the form direct from hot metal—without preliminary expense of type casting or type replenishment, type storage, case inspection or case laying—will modernize production in your composing room as you have undoubtedly modernized it in your pressroom.

Then, too, there is no expense for distribution. You can hold standing any number of advertisements without impairing type supply, you can meet peak loads with ease, you can give your advertisers the benefit of always-new and unbroken typefaces. And Ludlow slugs give you ideal material for stereotyping.

Better still, you can, if desired, purchase a Ludlow equipment without addition to your present budget. Out of weekly operating expense for operations the Ludlow eliminates entirely, you can pay for the equipment in a few years. And at the end of this time you will own the equipment, and the same economies will continue.

Let us talk over with you the economies the Ludlow will effect in your composing room, and submit a plan whereby you can purchase an equipment out of savings in your present operating budget.

LUDLOW TYPOGRAPH COMPANY

2032 CLYBOURN AVENUE, CHICAGO, ILLINOIS

DISTRICT SALES OFFICES IN NEW YORK, BOSTON, ATLANTA, SAN FRANCISCO

SET IN TEMPO BOLD CONDENSED AND TEMPO MEDIUM

DIRECT FROM HOT METAL